



UMODPC



RAIL OPERATIONS

612-404-03



Surface Transportation



- What if unit equipment is non-roadable?.... or is beyond organic lift capability.... or is beyond 400 mile motor march criteria?



...Then you must depend upon commercially provided service like rail!



Responsibilities -- General



- The deploying unit & installation both have planning and execution responsibilities for major rail activities
 - Rail loading/unloading
 - Restraining Material
 - Rail site preparation
 - Rail car inspection





Unit Responsibilities



- Unit commander: Overall responsible for preparing unit for rail operations
- Major unit responsibilities:
 - Prepare rail movement plan
 - Determine rail movement requirements
 - AUCL to DEL
 - Prepare equipment for rail movement
 - Load railcars



Unit Responsibilities (Cont)



- Specific responsibilities:
 - Appoint an OIC for the rail operation
 - Designate safety officer
 - Coordinate with Director of Public Works for blocking and bracing material
 - Provide trained load teams



Unit Responsibilities (Cont)



- Ensure vehicles are properly prepared/configured
 - Removing canvas and bows
 - Securing moving vehicle parts
 - Use FORSCOM/ARNG 55-1 & MTMCTEA Pam 55-19
- Coordinate logistical support for railhead ops
 - Lighting, latrines, mess, and medical



Unit Responsibilities (Cont)



- Ensure tie-down teams have proper equipment
- Stage equipment
- Ensure sufficient numbers of cars are spotted
- Inspect rail cars
- Conduct safety briefings
- Prepare rail cars for loading
- Load equipment on rail cars



Installation Transportation Office Responsibilities



- Computes railcars based on the shipping configuration of the equipment
- Orders rail cars based on deploying unit requirements.
- Inspects rail cars IAW AAR rules.
- Provides technical supervision for rail loading operations
- Liaison between MTMC and rail agent





Installation Transportation Office Responsibilities (Cont)



- Notifies the Unit on type and quantity of railcars, and railcar arrival schedule
- Maintains rail loading schedule according to the movement order/directive





Director of Public Works (DPW)



- Provides B & B materials for deploying units
- Deploying units must determine requirements & provide in advance to the DPW.





Rail Carrier Representative Responsibilities



- Joint inspection with ITO rep before cars positioned at loading ramp.
- Inspection following railcar loading to ensure:

Loaded railcars comply with AAR rules



Rail Load Plan -- FORSCOM Form 285-5-R



- Provides worksheet to assist in manual load planning
- TC-ACCIS provides automated rail load planning capability



Railcar Requirements



- Rail cars are obtained by ITO in the types and quantities required, based upon the deploying unit's requirements
- Deployment may be by commercial or "DODX" railcars





TM 55-2200-001-12



- In TM 55-2200-001-12 (extract H-1), The Official Railway Equipment Register table is used to determine the types of rail cars needed, and their associated capacity and dimensions



1a

DEPARTMENT OF DEFENSE, MILITARY TRAFFIC MANAGEMENT COMMAND-WASHINGTON, D.C. 20315.

2a5

Reporting Marks and ACI Nos. - DODX - 1 158

GENERAL OFFICE: Headquarters, Military Traffic Management Command, Eastern Area, AFPC MTLNBRN, Military Ocean Terminal, Bayonne, NJ 07002 (201)233-4411 (412)244-18

FREIGHT EQUIPMENT

Cars are marked "DODX" and are numbered and classified as follows:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672
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612-404-03



Railcars



- There are several types of railcars used for military exercises and deployments
 - Open Top Cars
 - + Flat Cars
 - + Gondolas





Railcars (Cont)



- Closed Cars
 - + Box car
- Specialty Cars
 - + Multilevel
 - + Heavy lift
 - + TOFC





ITO Requests Rail Routing from MTMC



MTMC obtains routing from rail company
selected



Rail Loading Requirements and Procedures



Preparing Unit Equipment for Rail Movement



- The deploying unit is responsible for preparing its equipment for rail movement





Preparing Vehicles Prior to Loading



- Vehicle Preparation Requirements:
 - All lifting and tiedown shackles attached to vehicles
 - Fuel tanks no more than 3/4 full
 - Canvas and bows removed or banded
 - Windshields Protected





Preparing Vehicle Prior to Loading (Cont)

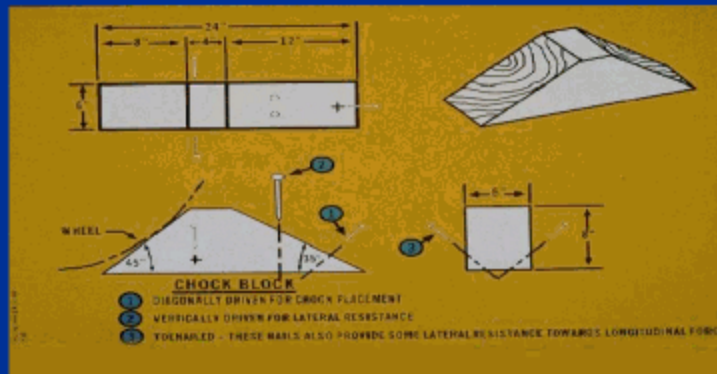


- Reduce vehicle configuration
- Secure any materials or equipment
- Bands must be approved by AAR.
- Ensure that hood latches are functional and secure.





Blocking and Bracing Materials



- Blocking & bracing materials are used to prevent cargo from shifting



Rail Site Facilities



Lighting

Medical support





Rail Site Facilities (Cont)



- Safety Procedures
 - Command and control facilities
 - Lighting
 - Latrine facilities
 - Messing
 - Medical support





Safety Requirements



- Appoint Safety OIC or NCOIC
- Qualified and properly equipped medical personnel on site
- Brief all soldiers on established safety procedures:
 - Avoid electrical wires, poles, switches
 - Never walk between or backward on rail cars
 - Running & jumping between cars is prohibited



Safety Requirements (Cont)



- No sleeping in or around cars
- All personnel stay clear of main track
- Personnel stay clear of rail cars when vehicles are moving on cars
- Minimum speed is used when driving vehicle onto railcars.





Safety Requirements (Cont)



- No sleeping in or around cars
- All personnel stay clear of main track
- Personnel stay clear of rail cars when vehicles are moving on cars
- Minimum speed is used when driving vehicle onto railcars.





Rail Site



- Rail site must be clean and free of debris.
- Ensure spanners are available.
- Ensure that MHE is on site for equipment that requires MHE support





Inspection of Railcars



- Rail cars are inspected prior to being positioned at final loading locations
- Purpose of inspection is to determine the cars suitability for the intended equipment/vehicle loads
- After railcars are accepted, Military accepts full responsibility to comply with AAR rules



Inspection of Railcars (Cont)



- Deploying unit and ITO representative inspect railcars prior to loading equipment. Checks include:
 - Doors on closed cars open and close and interior is free of debris
 - Open car decks are free of residue and old blocking & bracing materials
 - Chains are present and serviceable on chain rail cars



AAR Loading Rules



- The AAR makes no provision to protect cargo from the elements or forms of damage





AAR Loading Rules (Cont)



- The loading rules are applicable to both the railroad and the ITO.

- ① Loads can not exceed railcar limits



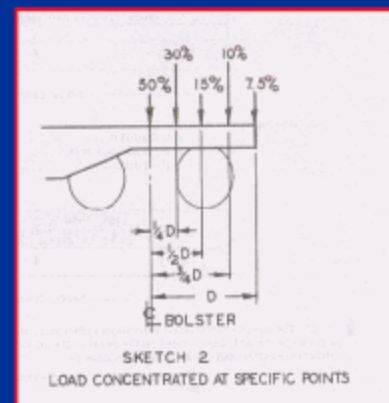


AAR Loading Rules (Cont)



- ② Do not exceed one half the load limit of the car on any axle.

Permissible Concentrated Load Percent of Stenciled Load Limit
50
30
15
10
7.5





AAR Loading Rules (Cont)



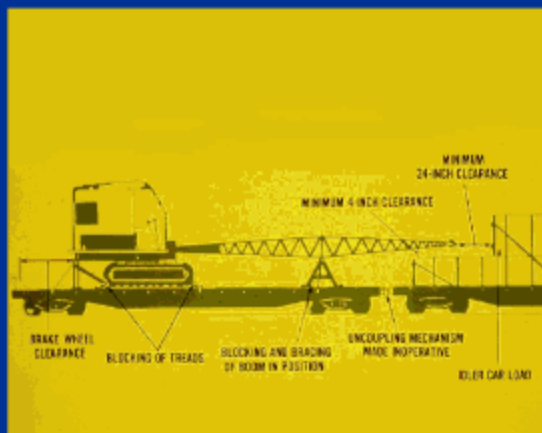
- ③ Balance load evenly on car
- ④ When loading large and heavy items not covered by rules, load largest dimensions and heaviest weight on the floor to prevent tipping
- ⑤ Secure items having a high center of balance to prevent tipping while in transit.



AAR Loading Rules (Cont)



- ⑥ Use idler cars when loads extend beyond the end of the loaded car.



- ⑦ Do not place heavy equipment on trailers that will ride on flat cars or TOFC



Vehicle Spacing



- Vehicles require a minimum of 10 inches of space between vehicles.



Wrong spacing



Loading Multilevel Cars



- Exercise caution when loading vehicles on or moving vehicles through multilevel rail cars. Check deck heights
- Decks may be different heights causing vehicle to strike the upper deck.





Setting Vehicles



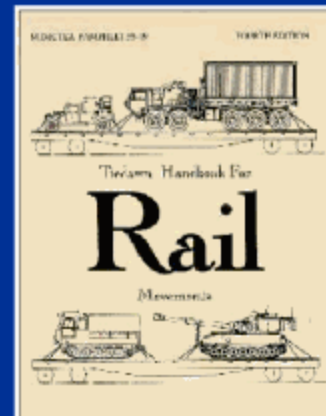
- After positioning vehicle on railcar, vehicle operator:
 - Places transmission in neutral
 - Sets parking brake
 - Places battery switches in "off" position



Tie-down Procedures



- When securing vehicles use these techniques.
 - ① Inspect chain assemblies and components.
 - ② Apply chains in pairs
 - ③ Turntable type winches





Tie-down Procedures (Cont)



④ Ensure proper wire or chain tension

- Place tension on wire rope to allow no more than one inch deflection.





Tie-down Procedures (Cont)



- ⑤ Secure excess wire rope or chain to the tension bearing part of the wire rope.
- ⑥ On chain devices, secure open-faced hooks to chain link with wire or nylon tie strap.
- ⑦ Lock chain-tightening device with wire.
 - Turnbuckles must have jamnuts tightened wrench-tight using two wrenches



Tie-down Procedures (Cont)



- ⑧ Secure chain through tie-down points at forty-five degree angle.
- ⑨ Pull chain tight as possible, ensuring that there are no twists or kinks, and secure chain hook to chain.





Tie-down Procedures (Cont)



- ⑩ Hand tighten turnbuckles first, then continue to tighten with open end or crescent wrench until 1/8 inch of the rubber compression ring shows.
- Store used chain assemblies in the rail car channel



Loading and Tie-down Checklist



- Checklists should be distributed to the loading teams. The checklist should contain the following:

Loading and Tiedown Checklist

For Vehicles on Chain Tiedown Flatcars

NOTE: Copies of this page should be distributed to loading teams.

- ☐ Make certain all hood latches are secured.
- ☐ Leave at least 10 inches between vehicles.
- ☐ Check for proper brake wheel clearance.
- ☐ Do not cross the chains.
- ☐ Use symmetrical tiedown patterns.
- ☐ Secure tiedowns at approximately 45° angles.



Loading and Tie-down Checklist (Cont)



- **Checklist Cont:**

- ☐ Seat and lock chain anchor or winch.
- ☐ Secure shackle in tiedown provision with wire tie or cotter pin.
- ☐ Pull chain tight and attach hook above the compression unit.
- ☐ Tighten chain.
- ☐ Use appropriate tool.
- ☐ Make sure chain is not kinked or binding.



Loading and Tie-down Checklist (Cont)



- Checklist Cont:

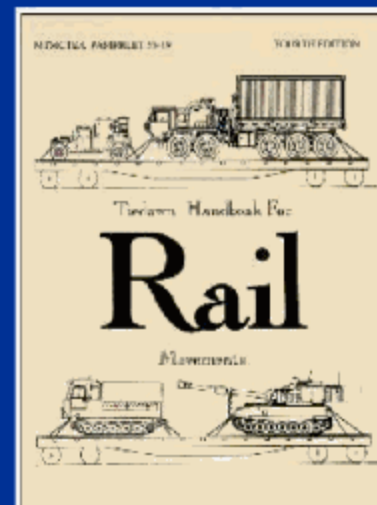
- ☐ Secure hooks with wire or nylon tie straps.
- ☐ Make sure turnbuckles are wired or locked.
- ☐ Tighten jamnuts with two wrenches.
- ☐ Do not secure chains to axles or springs unless figure shows to.
- ☐ Make certain turrets and guns, radiator doors, side skirts, outriggers, crane booms, expansible van bodies, and so forth are secured from extending up or over the side of the flatcar.



Tie-down Illustration



- Appendixes B and C provide tie-down procedures for the transport of military vehicles

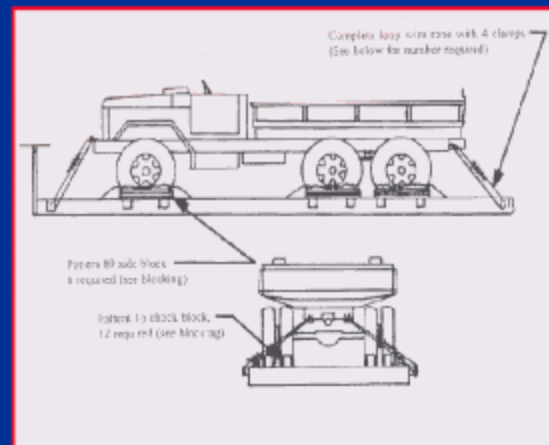




Three Axle Vehicle -- Tie-down Illustration



- 6 X 19
WRC IPS
Wire Rope

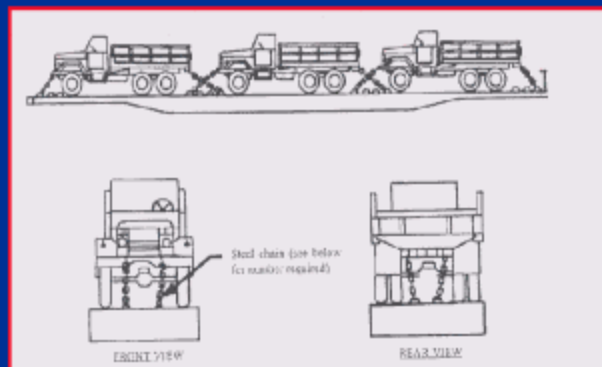




Three Axle Vehicle -- Tie-down Illustration (Cont)



- Alloy Steel Chain





Final Inspection



- Final inspection is made after the railcars are loaded to ensure that the contents are loaded, blocked and braced in compliance with AAR loading rules.
- The rail representative is the final approving authority for accepting rail loads.





Rail Equipment: Characteristics and Capabilities

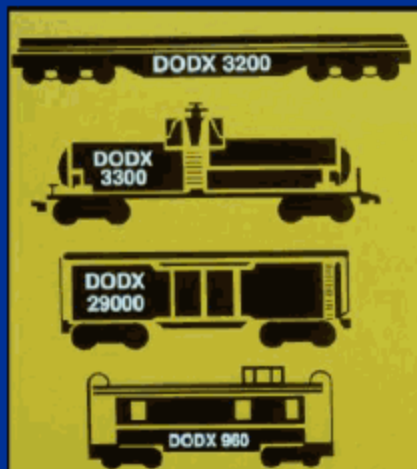


Association of American Railroads





Defense Freight Rail Interchange Fleet



UMODPC

Flatcars:	
General Purpose	1477
Special Purpose	139
Tank cars:	
General Purpose	375
Special Purpose	18
Boxcars:	
Special Purpose	30
Refrigerated	9
Misc cars:	
Escort Cabooses	6
Guard Cars	5
Spec Lease	11
TOTAL DODX:	2070

612-404-03



ASMP Railcar Requirements



- DA DCSOPS sets priority on which installations get railcars first.

- Ft Stewart	233
- Ft Hood	185
- Ft Carson	85
- Ft Campbell	236
- Ft Benning	62

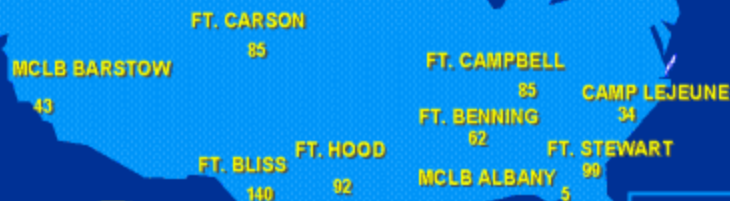
AMCCOM Installations:
198 cars at
12 Ammo Plants



MTMC Managed Railcars



Total rail fleet: Approximately 2,070



566 - 140 TON FLAT RAILCARS
335 - 100 TON FLAT RAILCARS
* PRE-ASSIGNED IN ORDER TO
RESPOND TO CONTINGENCIES

RAIL FLEET:

TANK CARS	375
FLAT CARS	1,477
BOX CARS	30
REEFERS	9
CABOOSES	6
SCHNABEL	2



Railway Equipment





Boxcars



- US Boxcars in domestic service have a capacity of about 100k lbs., or over 3900 cu feet.
- Ideal for commodities requiring protection from weather or susceptible to pilferage: foodstuffs, medicines, electronics, spare parts





Tank Cars



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612-404-03



Gondola Cars



- If car sides are necessary to keep bulk loads from shifting, use gondola cars





Hopper Cars



- Cars can be either covered or open at the top
- Used for transporting loose bulk commodities





Flat Cars



- Ideal for transporting military cargo and vehicles
- Equipment may be carried on DOD or common carrier flatcars





68 Foot Flat Car



- 4000 Series
 - 140 Ton Capacity
 - Contains integral spanner & chains





89 Foot Rail Car



- 4200 - Series
 - 85 -100 ton capacity
 - Used for wheeled and light tracked vehicles





Chain Tie-down Flat Cars





Multilevel Flat Cars



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Multilevel Flat Cars (Cont)



- Ramps are used to load the upper levels





Trailer on Flatcar (TOFC)





Container on Flatcar (COFC)



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Switch Engines



- Used to switch rail cars in and out of a loading area.





Line Haul Locomotives



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Caboose



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